

1. A retractable reel apparatus comprising:
a housing;
a reel rotatably disposed in the housing, the reel having a cylindrical portion; and
a wire having a first portion disposed around the cylindrical portion and a second portion disposed inside the cylindrical portion.
2. The apparatus of claim 1 wherein:
the first portion of the wire is wrapped in a first direction; and
the second portion of the wire is wrapped in a second direction.
3. The apparatus of claim 2 wherein said first and second directions are opposite one another.
4. The apparatus of claim 2 wherein the first and second portions of the wire are interconnected by a substantially 180° bend.
5. The apparatus of claim 1 further comprising a spring biasing the reel in a direction tending to wind up the first portion of the wire.
6. The apparatus of claim 5 wherein the spring is spaced from the wire.
7. The apparatus of claim 6 wherein:
the reel has a disc portion adjacent to the cylindrical portion; and
the wire and spring are disposed on opposite sides of the disc portion.
8. The apparatus of claim 1 wherein:
the housing defines first and second openings therein;

the first portion of the wire extends through the first opening; and
the second end of the wire extends through the second opening.

9. The apparatus of claim 8 wherein the housing comprises:

a cylindrical portion; and

a side wall; and

further comprising a cover positioned adjacent to an end of the cylindrical portion of the housing opposite the side wall thereof.

10. The apparatus of claim 9 wherein the first opening is defined in the cylindrical portion and extends generally tangentially thereto.

11. The apparatus of claim 10 wherein the second opening is defined between the housing adjacent to the cover.

12. The apparatus of claim 11 wherein the second opening is substantially perpendicular to an axis of the housing.

13. The apparatus of claim 9 wherein the second portion of the wire is positioned in a slot defined in the cover.

14. The apparatus of claim 13 further comprising a cover inset covering at least a portion of the slot.

15. The apparatus of claim 13 wherein the second end of the wire extends through the slot and is substantially perpendicular to the cover

16. The apparatus of claim 8 further comprising a brush disposed in the first opening and in wiping contact with the first portion of the wire.

17. The apparatus of claim 8 wherein the ends of the first and second portions of the wire are in planes substantially perpendicular to one another.

18. The apparatus of claim 1 wherein the housing has a mounting lug thereon.

19. A retractable wire apparatus comprising:

a housing;

a reel rotatably disposed in the housing;

a wire having a first portion wrapped in a first direction around the reel and a second portion counter-wrapped in a second direction within the first portion.

20. The apparatus of claim 19 wherein said first and second portions are substantially concentric.

21. The apparatus of claim 19 wherein said first and second portions of the wire define an annulus therebetween.

22. The apparatus of claim 21 wherein the reel has a wire guide extending into the annulus.

23. The apparatus of claim 19 further comprising a spring biasing the reel in a direction tending to wind up the first portion of the wire.

24. The apparatus of claim 23 wherein the spring is spaced from the wire.

25. The apparatus of claim 24 wherein the reel comprises a disc portion; and

the wire and spring are disposed on opposite sides of the disc portion.

26. The apparatus of claim 19 wherein:

the housing defines first and second openings therein;

the first portion of the wire extends through the first opening; and

the second end of the wire extends through the second opening.

27. The apparatus of claim 26 wherein:

the housing comprises:

a cylindrical portion; and

a side wall; and

a cover positioned adjacent to an end of the cylindrical portion of the housing opposite the side wall thereof.

28. The apparatus of claim 27 wherein the first opening is defined in the cylindrical portion and extends generally tangentially thereto.

29. The apparatus of claim 28 wherein the second opening is defined between the housing and the cover.

30. The apparatus of claim 29 wherein the second opening is substantially perpendicular to an axis of the housing.

31. The apparatus of claim 27 wherein the second portion of the wire is positioned in a slot defined in the cover.

32. The apparatus of claim 27 further comprising a cover inset covering at least a portion of the slot.

33. The apparatus of claim 27 wherein the second end of the wire extends through the slot and is substantially perpendicular to the cover

34. The apparatus of claim 26 further comprising a brush disposed in the first opening and in wiping contact with the first portion of the wire.

35. The apparatus of claim 26 wherein the ends of the first and second portions of the wire are in planes substantially perpendicular to one another.

36. The apparatus of claim 19 wherein the housing has a mounting lug thereon.

37. A retractable reel apparatus comprising:

a housing comprising:

a side wall;

a spring guide extending from the side wall and having an end; and

a housing spring tab extending from the side wall;

a torsion spring positioned in the housing adjacent to the side wall and around the spring guide, the spring having an outer end initially engaging the housing spring tab and an inner end engaging the end of the spring guide;

a reel rotatably disposed in the housing adjacent to the spring and comprising a reel spring tab thereon, wherein:

the reel spring tab is spaced radially inwardly from the housing spring tab;

when the reel is rotated in the housing, the spring tab engages a portion of the spring adjacent to the outer end thereof such that the outer end of the spring is disengaged from the housing spring tab and engaged with the reel spring tab; and

thereafter, the outer end of the spring is engaged with the reel spring tab, and the inner end of the spring remains engaged with the end of the spring guide such that further rotation of the reel within the housing applies torsion to the spring for biasing the reel in the opposite direction.

38. The apparatus of claim 37 wherein the outer and inner ends of the spring are substantially U-shaped.

39. The apparatus of claim 37 wherein the spring is made of stainless steel.

40. The apparatus of claim 37 further comprising a wire having a first portion wrapped in a first direction around the reel and a second portion counter-wrapped in a second direction within the first portion.

41. The apparatus of claim 40 wherein said first and second portions are substantially concentric.

42. The apparatus of claim 40 wherein said first and second portions of the wire define an annulus therebetween.

43. The apparatus of claim 42 wherein the reel has a wire guide extending into the annulus.

44. The apparatus of claim 40 wherein the spring is spaced from the wire.

45. The apparatus of claim 44 wherein the reel comprises a disc portion; and the wire and spring are disposed on opposite sides of the disc portion.
46. The apparatus of claim 40 wherein pulling an end of the first portion of the wire tends to rotate the reel.
47. The apparatus of claim 40 wherein an end of the second portion is substantially stationary.